APPENDIX C
DIAGNOSTIC CULTURAL MATERIALS

CERAMICS

COARSE EARTHENWARE

English delftware (Garner and Archer 1972; Britton 1987; Lipski and Archer 1984; Carnegy 1993) has an opaque white tin glaze that was developed by the Spanish Moors and adopted by the Italians who called it, majolica or maiolica. The tin-glaze was used also in the Netherlands in the sixteenth century and was called Delft after the Dutch town where it was made. The French and German also developed a tin-glazed ware that they called faïence. The English version is called delftware began manufacture in the mid-sixteenth century. The English also referred to delftware as "galleyware." During the reign of Charles II, it was described as "painted Earthen Wares." The earliest English delftware was made about 1550. These were globular jugs, an imitation of Rhenish stoneware, with a wide range of colors: dark blue, purple, orange, red and green. In the eighteenth century, English delftware was dominated by motifs inspired from Chinese porcelain, which was then reaching the country in large quantities. By 1690 and throughout the eighteenth century, English delftware manufacture was in a period of using bright red, green, yellow and blue colors. The popularity of delftware declined by 1760 when white salt-glazed stoneware and creamware came into production.

Lambeth delft was made in London before 1680. The glaze is almost white without any marked tint, although some specimens have a pink cast. Later Lambeth pottery has a slightly greenish blue tint.

Liverpool delft has a variety of tints from clear bluish to pure white. Another distinction is a "sunken blue" the dark shades tend to cause the white glaze to shrink to cause a depression in the surface, it is also found on Dublin delftware.

Blue and white ware, chiefly from London, is plain and simply decorated with mainly in blue and was molded based on contemporary silver and pewter forms.

White delft has a date range of 1640-1800 for plain, undecorated delftware.

Polychrome delft, the flower style, was popular from 1720 to 1750 (Noël Hume 1970).

English Slipware (Grigsby 1993) was widely produced in Britain throughout the seventeenth, eighteenth and nineteenth centuries. The slip, a mixture of water and clay, was applied to a green coarse earthenware body. A lead-oxide glaze is coated on the piece that is fired at a low temperature.

The body color ranges from buff to reddish brown or purple. The body was usually press-molded into circular or oblong dishes. Trailing was one of the most commonly used decorative techniques. Combing, also referred to as feathering, involved trailing one or more colored slips usually in parallel line, then drawing a

pointed tool across the trailed pattern, distorting it into a complicated series of peaks and troughs.

Buckley Ware is a thick agateware body mixed with red and yellow clay. This ceramic type was common in the third quarter of the eighteenth century. Noël Hume described Buckley as being characterized by "purplish red bodies" that are coated with a thick black glaze and are "frequently heavily ribbed" (1970:132-135).

American Redware (Bivins 1972; Dickinson 1985; Lasansky 1979; McConnell 1988) is generally utilitarian pottery made from clay with iron mineral content which fires to a reddish color in the kiln. American redware is very porous and is typically lead glazed for waterproofing. Decorative techniques include powdered mineral oxides to highlight, color or decorate. Copper oxide - green; iron oxide - brown and manganese oxide - black. Other decorative techniques include slip glazing and incising (sgraffito). Manufacture of American redware has been documented as early as 1625 at Jamestown. By the early 1800s the production of redwares in American diminished with the exception of potters in Pennsylvania, Virginia, Illinois and North Carolina who continue to produce redware to this day.

REFINED EARTHENWARE

Creamware has a cream color resulting from the lead glaze. Creamware was manufactured between 1760 to 1820 in many English potteries, although the center of creamware production was in Staffordshire and Yorkshire (Miller and Stone 1970). Decorative attributes include plain and relief molded.

Early creamware has a deep yellow tint. By 1775, Staffordshire potteries began using kaolin clay resulting in a lighter colored creamware that became more common after that date. By 1830 an even lighter colored creamware had been developed, the resulting product is most commonly referred to as whiteware.

Pearlware follows creamware in the development of British ceramics. It has a white paste and a clear lead glaze that has a blue cast from cobalt that has been added for a whiter appearance. The manufacture of pearlware is attributed to Josiah Wedgwood during the late 1770s (Noël Hume 1970:391). Pearlware was the dominant ceramic in 1810, but by 1820 it was in decline (Noël Hume 1970:130). Cynthia Price (1979) suggests that the terminal date may be as late as 1865.

Shell Edge Decorated Wares appear in Wedgewood's 1775 pattern book and Leeds' pattern book of 1783. According to Miller and Hunter (1990) blue and green shell-edged cream and pearl wares were one of the standard products of the Staffordshire potteries. Their popularity after 1785 has been linked to being the cheapest tableware available with color decoration. Overglaze painted, shell edge creamware was the first produced in the 1770s. Shell edge decoration on creamware was popular from 1775-1790. Blue edge was the dominant color. By 1840, green shell edge had become rare, while blue shell edge remained commonly available into the 1860s. After that date, shell edge is not commonly found in archaeological

assemblages, although production continued into the 1890 and possibly later. Miller and Hunter have developed a chronology of shell edge types that is summarized below.

Rococo Style, irregular scalloped rim and undecorated center	1780-1810
Evenly scalloped Shell Edge	1800-1840
Embossed Edge	1820-1840
Unscalloped Shell Edge with impressed pattern	1840-1870
Unscalloped and unmolded Shell Edge	1850-1890
Creamware rim types:	
Molded Whieldonware:	1750-1775
Queen's ware	1766-1790
Royal Pattern	1766-1820
Feather Edge	1765-1790

Transfer-printed wares date from 1797 when the process of applying an engraved decoration to a ceramic surface was developed (Miller 1965). The earliest form is called overglaze printing and it was applied to soft-paste porcelain and fired at a low temperature. Blue (also some black & sepia) underglaze was developed in 1760 and perfected by Josiah Spode in 1781, it remained popular until 1830. Until 1805, patterns followed adaptations from Chinese porcelain, with the development of copper plate engraving finer lines were able to be engraved thus creating more variation in color tone. After 1830, the quality of design and the intensity of color declined. Multicolor underglaze was developed in 1848 in which three colors - blue, red and yellow - could be fired from a single transfer. Brown and green were added to the color selection in 1852.

Hand-painted wares (Price 1979) are comprised of two general types: broad line and thin line. Prior to 1835 polychrome hand-painted designs were done in earthen tone colors (mustard yellow, mocha brown and burnt orange). After 1835, polychrome was done with brighter colors like grass green, golden yellow, red and powder blue.

Spatterware (1780-1850) originated and manufactured in the Staffordshire district of England from 1780-1830, although some examples of American-made spatterware are said to exist. The peak period of production was 1810 to 1840, much being exported to the Americas, Australia and West Africa (McConne1l 1990). Spatterware is identifiable by specific design themes of hand-painted or transfer-printed theme in the center or on the side of the ware with borders and backgrounds being heavily accented by spatterwork that has been powdered on. Motifs include Peafowl, Fort, Schoolhouse, Tulip, Thistle and Acorn. Spatter decoration appears on "China glaze," i.e. early pearlware from the late 1770s.

Spongeware is considered to have metamorphosed from spatterware in the 1830s as a result of needing to speed up the decorating process (McConne1l 1990). During a period of transition, there was an overlap of decorative techniques with some pieces having both spatterware and spongeware. The outcome was a coarser style that was achieved from daubing colors onto the ware with either cut sponges, brushes or

pieces of cloth. Early examples were manufactured in England; however, American potteries became the primary manufactures until 1930.

Ironstone or Stone China (1800-1840) is vitrified or semi-vitrified heavy dense wares. Most produced prior to the 1830s were heavily decorated, commonly combining painting or enameling with printing. Stone Chinas were mostly copies of Chinese porcelains. Decoration for the early period was usually Chinese style and the glaze was almost always tinted blue with cobalt, as were the china glaze and pearlware of the same period.

Stone china was produced to take the place of Chinese porcelain, which the British East India Company stopped importing in 1781. In 1799, a customs duty of over 100 percent was placed on the importation of Chinese porcelain in England. When the source of porcelain was closed off, Miles Mason purchased a pottery in Staffordshire and began trying to make porcelain and subsequently Mason's "Patent Ironstone China" from which the name Ironstone has been derived (Miller 1991:10).

White GraniteWare (1845-1930) evolved out of Mason's Ironstone and stone china and is still manufactured today. White granite is a classification used to avoid confusion with the highly decorated stone china or early ironstone. White granite was being imported to the United States by the 1840s. It is described on the invoices as "White Glaze" and "White Granite" After the 1850s the term white granite or "W.G." becomes more common. Based on invoices white granite is considered to have been the dominant type in use from the 1850s until the end of the nineteenth century (Miller 1991).

Rockingham is produced on either a yellow clay base or on stoneware, an occasionally on a redware or whiteware base that had been prepared with a yellow glaze. Rockingham is not yellowware with a brown glaze (Brewer 1996). It was considered more durable than redware for utilitarian use. It was first made in England around 1785 by Swinton Pottery in Yorkshire. They called it Brown China and continued manufacture until 1842 when the pottery closed. Glazes ranged from golden butterscotch to dark molasses, some show controlled streaking a design that lasted until the 1800s. The glaze is a mixture of flint, feldspar, red lead or iron oxides and clay. The brown color was achieved by the addition of manganese. The glaze was applied by dipping, spattering, brushing or sponging.

By 1826 the glaze had been perfected and was being called Rockingham, after the Marquis of Rockingham. Joshia Spode, Copeland and Garrett in Staffordshire copied the pottery; and Joshia Wedgewood & Sons produced Rockingham by 1840. The first manufacture in the United States is credited to New Jersey City Pottery in the early 1820s. By 1835 nearly every pottery in the United States was manufacturing the type.

A glazed ware similar to Rockingham was patented in 1849 by Fenton Pottery in Bennington, Vermont, and was called Flint Enamel. The difference is that in addition to brown, blue, green or orange has been added to the glaze. By 1852 Ohio potteries were producing Flint Enamel and continued manufacture into the early twentieth century.

Yellowware came to America from England in the latter half of the 1820s and was being produced in New Jersey, Pennsylvania, Ohio, Vermont, New York and Maryland by the 1840s and 1850s (Leibowitz 1985). Yellowware reached its peak in production in the 1860s and 1870s. Although it was produced into the 1930s, yellowware ended its popularity by 1900.

Yellowware imported from England has a yellow glaze. American yellowware was made with a clear alkaline glaze. It was made to replace porous and fragile redware that had been in use to that time.

Leibowitz identifies four time frames to help identify American yellowware.

1830	plain, no decoration, no foot formation, no lips, hand thrown
1840	annular banded and dendritic (mocha) decoration
1850-1870	coarse, heavy yellowware, predominately in the Midwest, cream and buff color to rich canary yellow
1860-1900	pressed or molded yellowware, scenes and floral decoration

STONEWARE

White salt-glazed stoneware was manufactured in England between 1740 and 1770. It has a distinctive glaze resulting from placing salt in the kiln during firing (Miller and Stone 1970:68). This type of ceramic replaced delftware in the 1750s (Noël Hume 1970:115).

Brown salt-glazed stoneware was manufactured primarily for utilitarian purposes, particularly for the storage of liquids (Miller and Stone 1970). The exterior glazed ranges in color from dark brown to grayish brown. This type of stoneware was made in England, Germany and the American colonies.

Bristol slip glaze (Zug 1986*)* was initially developed in England during the first half of the nineteenth century as a substitute for toxic lead glaze and to cover the drab body of stoneware. It replaced salt-glazed stoneware and brown slip-glazed pottery. The clean white look of the "new" Bristol glaze became popular with a public that was concerned with sanitation. Potters from Ohio included Bristol glazes in the 1880s. Production spread across the North American continued and continued to be manufactured until the 1900s. Before 1920, Bristol glaze exterior with Albany slip-glazed interior was very popular. This was an imitation of British stoneware vessels in which the upper portion, or sometimes the upper and lower portion, was dipped in a ferruginous solution before glazing, similar to a decorative technique used on salt-glazed stoneware. After 1920 the Bristol glaze was almost always used alone. Producing coarse white glazed stoneware. At times cobalt was added to the glaze, additional decoration was achieved through decalcomania or stamped decoration, sponging or spraying coloring oxides (mainly cobalt for blue, copper for green and iron for brown) over the glaze. Hand painting did not fit into the industrial pattern of production.

The basic color of the glaze is white covering a dull buff or tan stoneware. It is often used in combination with Albany slip glazes to produce and brown and white utilitarian ware. The glaze may sometimes be pink or tan flecked if it is applied of a

body with a high iron content. Otherwise it varies from a cream to dead white. At times it is not totally opaque, but more often it is very opaque. There are relatively few defects as a result of the development of improved temperature control for kilns, although sometimes pin holes result. The body also has a tendency to "crawl" of agglutinate and pull together leaving small patches of the body without glaze.

Jackfield was produced from 1745 until 1790. The thin stoneware body when fired is a purple or gray and is glazed deep black. The Jackfield Pottery was founded in Shropshire, England, around 1750; however, Noël Hume (1970:123) points out that a "very similar ware was made in the same period by Thomas Whieldon and others in Staffordshire, Whieldon's having a red body and a slightly more brilliant black glaze."

American Stoneware (Lasansky 1979) redware potters turned to the manufacture of stoneware in the early 1800s when the techniques became available. Change in consumer demand, largely resulting from the increasing availability of glass canning jars and the tin can, is reflected in the stoneware vessel types, e.g. jugs, large crocks and storage containers.

PORCELAIN

English porcelain was developed in the 1840s as a soft paste in an attempt to reproduce Chinese hard-paste porcelain made with kaolin and petuntse. In 1768, the first English hard-paste porcelain was developed. However, Josiah Wedgewood's creamware was more popular. Most of the porcelain types developed in the eighteenth century were replaced by bone china, which was introduced by Josiah Spode around 1794. Bone china became the dominant type produced in England by the early nineteenth century and continues today. Because of the low firing temperature, bone china can be decorated with a wider color range and is very translucent; however, it will stain if the glaze is cracked. English porcelain rarely appears in American archaeological assemblages prior to the second half of the nineteenth century (Miller 1991).

GLASS

Several manufacturing attributes of glass artifacts are also useful as diagnostic markers (Husfloen 1992; Jones 1991; McKearin and McKearin 1989; Spillman 1983).

Color: Iron impurities in silica give glass a green, brown, amber or aquamarine color. Glassmakers refer to this as "green glass" and used it for making bottles, jars and windows. The color varied depending on the amount and type of iron impurities, the temperature of the furnace and how long the glass was heated. Colorless glass or "white glass" was used for tableware, perfume bottles and medicine/chemical containers. To make colorless glass the sand had to be purer and manganese was added to decolorize. By adding metallic oxides all glass could be artificially colored:

cobalt or copper made blue glass; manganese made purple; yellowish green came from adding uranium; red after adding gold or copper and opaque white from tin.

Pontil scars: Typically three types of pontil scars are found on free-blown bottles. These are: rough, iron or graphite and sand. The rough pontil is mostly found on bottles made before 1850. It is easily recognized as a solid, circular scar that protrudes from the base. Sometimes the bottom of the bottle was pushed slightly into the body. The iron or graphite pontil was used during the 1845-1870 time period, especially on soda and mineral bottles. Characteristics of this scar are a smooth, circular depression with black or reddish brown markings that look like graphite pencil rubbings. Sand pontil scars consist of a thin line of glass chips and a rough surface caused by grains of sand. Sand pontils are commonly found on English dark green "wine" bottles.

Pressed Glass: Although English and Dutch glasshouses were producing small amounts of pressed glass in the late eighteenth century, the technique was improved in America in the 1820s. The earliest patent was for making glass furniture knobs. the presence of pressed glass within an archaeological provenience indicates a post-1820 deposition date.

METAL

Shoe buckles became popular in the early 1500s, but were replaced in the late 1500s with "rosettes and ribbon ties, which continued in vogue throughout most of the seventeenth century." Abbitt's report quotes from William Hone's *Every-Day Book* (1827) that "shoe buckles were revived before the revolution of 1689 and remained fashionable till after the French Revolution in 1789. They finally became 'extinct' before the close of the eighteenth century." Merry Abbitt's study of shoe buckles recovered from excavations at Colonial Williamsburg follows a typology established by Jacob L. Grimm in *Archaeological Investigations at Fort Ligonier* (1970). This classification system has seven basic groups, which are subdivided in eleven styles. Using this system of identification, the buckle recovered from Shovel Test 2, Zone 2, on Eden Street is similar in description to Type II. It was cast with copper-alloy and has right angle corners. The decoration is simple horizontal grooving with straight edges. The buckle measures 1½ inches from top to bottom and 2 inches from side to side. The width of the metal is 3/8ths of an inch and the thickness of the metal is approximately 1/16th of an inch. Evidence indicating how this buckle became part of the archaeological record was found in the broken pin terminal (John Clauser, personal communication 1996). Following Grimm's nomenclature for pin terminals, the Eden Street buckle is comparable with those recovered from a post-1790 context. However, Abbitt points out that this is not a conclusive *terminus post quem* because buckles with this later type of pin terminal have been recovered from Williamsburg in a post-1770 context.